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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/971,857
Filing Date: October 04, 2001
Appellant(s): SYMONS ET AL.

John P. Wagner
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/14/07 appealing from the Office action mailed 3/12/07.

(1) Real Party in Interest

A statement identifying by name the Real Party in Interest contained in the brief is correct.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Arkko et al., **US 6,535,517 B1**, issued on Mar. 18, 2003, and filed on Jun. 12, 1998.

Fitzgerald et al., **US 5,581,764**, issued on Dec. 03, 1996, and filed on May 02, 1994.

Benfield et al., **US 2003/0009552 A1**, published on Jan. 09, 2003, and filed on Jun. 29, 2001.

Aoyagi et al., **US 2002/0032761 A1**, published on Mar. 14, 2002, and filed on Jan. 29, 2001.

Ootani et al., **US 2002/0135610 A1**, published on Sep. 26, 2002, and filed on Aug. 03, 2001.

(9) Grounds of Rejection

The following **ground(s) of rejection are withdrawn:**

- Whether the specification is non-enabling under 35 USC, first paragraph.
- Whether the claims 1-27 are related to non-enabling disclosure under 3 USC, first paragraph.

The following **ground(s) of rejection are applicable to the appealed claims:**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arkko et al. (hereinafter Arkko, U. S. Patent No. 6,535,517 B1) in view of Fitzgerald et al. (hereinafter Fitzgerald, U. S. Patent No. 5,581,764).

As per claim 1, Arkko explicitly discloses a method for managing a switched network infrastructure comprising:

storing an expected network infrastructure description of a network having a switched infrastructure without requiring hubs, said network having data center (fig. 5A item #505, col. 7 L1-10: network with routers and switches and no hubs, col. 9 L6-7, col. 2 L35-36, L61-65 and fig. 5A item #505; fig. 1-4 and col. 3 L50-67);

comparing said expected network infrastructure description with a current network infrastructure description (col. 9 L15-18, col. 2 L35-40, L62-65, fig. 5A), wherein said comparing detects any new devices in the network infrastructure and any devices or device interfaces that have been removed or have failed in the network (col. 9 L1-56: installation changes adds new devices and/or removes devices, comparing the updated and stored expected topology with current results in a detection of new devices or removed devices, fig. 5A item #540; col. 12 L9-32); and

outputting a result of said comparing to an operational terminal at said data center (col. 13 L1-23: operator can also be located at local exchange center: i.e. data center comprising devices), wherein only differences between said expected network infrastructure description and said current network infrastructure disruption are displayed (col. 9 L23-45, col. 14 L14-16: reporting the deviation, and col. 13 L1-23); and

providing said result in a user accessible format on said operational terminal at said data center operation for utilization by a data center operator (col. 14 L1-16, fig. 5A).

However, Arkko does not disclose the process of detecting any changed configurations of devices in the network including hardware, software or firmware configuration changes.

Fitzgerald discloses the process of storing an expected configuration including software, hardware or firmware of a network device [i.e. should have list], comparing the expected configuration of the device with current configuration [i.e. already have list] of the network device including hardware, software or firmware configuration changes, detecting any changed configuration of devices in the network including software, hardware or firmware configuration changes and outputs a difference list or a report comprising the detected differences in

configuration of the network devices (col. 4 L60 to col. 5 L40, col. 7 L51 to col. 8 L15 and col. 9 L60 to col. 10 L5, fig. 3: Need List is equivalent to difference list).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Fitzgerald with Arkko, in order to detect any changed configuration of the devices in the network including hardware, software **or** firmware changes.

One of ordinary skilled in the art would have been motivated because it would have determined or identified any updates/changes necessary to configure a device and manage the device accordingly (Fitzgerald, col. 5 L36-57).

As per claim 2, Arkko discloses a system wherein the network infrastructure is a switched network infrastructure (fig. 1-4 and col. 3 L50-67, col. 6 L46 to col. 7 L11: network including routers and/or gateways, and no hubs).

As per claim 3, Arkko discloses the process of implementing a change of said network infrastructure with a configuration agent and storing said change in said expected network infrastructure description (col. 9 L46-57 and col. 14 L32-34).

As per claim 4, Arkko discloses the process of collecting said current network infrastructure description (col. 10 L21 to col. 12 L24).

As per claim 5, Arkko discloses the process wherein said collecting current network infrastructure description further comprises using agents to collect said current network infrastructure description (col. 10 L21 to col. 12 L24).

As per claim 8, Arkko does not explicitly disclose the process of outputting a list of devices from said expected network infrastructure description which are missing from said

current network infrastructure description, outputting a list of devices from said current network infrastructure description having a different configuration from the configuration of said devices in said expected network infrastructure description and outputting a list of devices from said current network infrastructure description which are not described in said expected network infrastructure description.

Fitzgerald discloses the process of comparing a Should have list (SH, read as expected network infrastructure description) and Already have list (AH, read as current network infrastructure description) of network resources (fig. 24 block #98) and based on comparison, generating (read as outputting) a Need List that identifies items that are present in the AH list but absent from SH list (col. 5 L10-30). A Need list also identifies resource deletions, additions, and updates necessary to configure a desktop (read as list which identifies the missing component, not described component and component with different configuration in either expected or current network infrastructure description, fig. 24 item #98 and #100 and fig. 25 item #112, #114, #116 and #118; fig. 3 considering an update function for a device with different configuration, delete function for a deleting devices or resources that are missing from current network infrastructure description and adding function for adding resources that are not described in expected network infrastructure description or Should have list; col. 5 L10-57).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in view of Fitzgerald, in order to output a list of devices that are missing from current network infrastructure description, devices or resources having a different configuration from expected configuration and devices that are not described in expected network infrastructure description.

One of ordinary skilled in the art would have been motivated because doing would have automated and enabled the management of changes in a distributed computing environment (Fitzgerald, col. 8 L15-21). It would have also articulated and managed the specific system configuration requirements and would have further permitted dynamic reconfiguration of a system based upon policy changes and system technology configuration changes (Fitzgerald, col. 7 L30-35). Also, it would have enabled resource deletions, additions, and updates necessary to configure computer systems in accordance with administrator requirements (Fitzgerald, col. 5 L35-40).

As per claim 9, Arkko discloses the process of informing the communications operator with an alarm at a monitoring terminal about a deviation (col. 9 L1-45), however Arkko does not disclose the process of outputting a message stating that expected network infrastructure description and current network infrastructure description are identical.

But, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in order to output a message stating that the expected and current infrastructure description are identical, since Arkko teaches the process of outputting and informing the operator about the deviation.

One of ordinary skilled in the art would have been motivated because it would have informed and/or notified the network administrator about the status of the network infrastructure and/or changes occurred in the network infrastructure if there are any (Arkko, col. 9 L42-45).

2. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being obvious over Arkko et al. (hereinafter Arkko, U. S. Patent No. 6,535,517 B1) in view of Fitzgerald et al. (hereinafter Fitzgerald, U. S. Patent No. 5,581,764), and further in view of Benfield et al. (hereinafter Benfield, Pub. No.: US 2003/0009552 A1).

As per claim 6, Arkko in view of Fitzgerald does not explicitly disclose the process of converting said expected network infrastructure description into an expected network infrastructure graphical description and converting said current network infrastructure description into a current network infrastructure graphical description.

Benfield, from the same field of endeavor discloses the process of presenting (i.e. converting or formatting) the topology information in a database as a topology map (i.e. graphical representation, fig. 12A-12F and pg. 16 [0214], [0216], pg. 1 [0011], pg. 17 [0217-0220]).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in view of Fitzgerald and further in view of Benfield, in order to convert the expected and current network infrastructure description to the expected and current network infrastructure graphical description, since Miyake teaches the process of presenting the database information into a topology map.

One of ordinary skilled in the art would have been motivated because it would have enabled a user and/or administrator to easily discern the topological changes (Benfield, pg. 17 [0220], [0222]).

As per claim 7, Arkko in view of Fitzgerald does not explicitly disclose the process of comparing said expected network infrastructure graphical description with said current network infrastructure graphical description.

Benfield, from the same field of endeavor, discloses the process of comparing topology maps of two different states (read as comparing two graphical representation of network infrastructure, pg. 17 block #218-223).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in view of Miyake, and further in view of Benfield, by incorporating the teaching of Benfield as stated above, in order to compare expected network infrastructure graphical description with current network infrastructure graphical description.

One of ordinary skilled in the art would have been motivated because any changes in network topology would have been displayed using graphical changes such that user would have easily discerned the topology changes and/or an administrative user would have been able to view one or more changes in topology over a period of time (Benfield, pg. 17 block #220, 222).

3. Claims 10-16, 18, 19-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arkko et al. (hereinafter Arkko, U. S. Patent No. 6,535,517 B1) in view Aoyagi et al. (hereinafter Aoyagi, Pub. No.: 2002/0032761 A1), and further in view of Ootani et al. (hereinafter Ootani, Pub. No.: 2002/0135610 A1).

As per claim 19, Arkko discloses a computer-usable medium having computer-readable code embodied therein for causing a computer system to perform a method for managing a switched network infrastructure comprising:

storing an expected network infrastructure description of a network having a switched infrastructure without requiring hubs, said network having data center, said description comprising a device name for each device of said expected network infrastructure (fig. 5A item #505, col. 9 L6-7, col. 2 L35-36, L61-65 and fig. 5A item #505; col. 15 L3-15, fig. 1-4: switched network without hubs, col. 6 L46 to col. 7 L12);

comparing said expected switched network infrastructure description with a current network infrastructure description (col. 9 L15-18, col. 2 L35-40, L62-65), wherein said comparing detects any new devices in the network infrastructure and any devices or device interfaces that have been removed or have failed in the network (col. 9 L1-56: please note the phrase "installation changes", it means that it detects if there are any devices added removed; col. 12 L9-32); and

outputting a result of said comparing to an operational terminal at data center, wherein only differences between said expected network infrastructure description and said current network infrastructure disruption are displayed (col. 9 L23-45, col. 14 L14-16 and col. 13 L1-23); and

providing said result in a user accessible format on said operation terminal at said data center operation for utilization by a data center operator (col. 14 L1-16).

However, Arkko does not disclose the process wherein the network infrastructure description is described as an XML data type description comprising at least one configuration attribute and the process of detecting any changed configuration of the devices in the network including hardware, software or firmware configuration changes.

Aoyagi, from the same field of endeavor discloses the process of storing the network infrastructure description comprising a device name and at least one configuration attribute (fig. 9 item #901, item #902, pg. 7 [0158-0162]) and the process of detecting any configuration change of the network devices including hardware, software or firmware configuration changes by comparing the previously collected data with the currently collected data for the differences (pg. 25 [0468-0477], pg. 35 claim 13: detecting the change of IP address configuration of the hardware device, i.e. IP address change is a configuration change of an hardware element of the device and/or configuration change of device itself).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to Arkko in view of Aoyagi, in order to include at least one configuration attribute in the description of the network device and the process of detecting any configuration change of the devices in the network including hardware, software or firmware configuration change.

One of ordinary skilled in the art would have been motivated because it would have detected any variation in configuration information such as activation, suspension, modification of connection, modification of IP address and the like of the active network devices (Aoyagi, pg. 35 claim 13).

However, Arkko in view of Aoyagi does not disclose the process wherein the network infrastructure description is described and/or stored as an XML data type description.

Ootani explicitly discloses the process of storing the network topology or description as an XML file (fig. 4-14, pg. 4 [0062-0065], pg. 5 [0080-0086], pg. 6 [0089-0092], [0095]).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in view of Aoyagi, and further in view of Ootani, in order to store and compare the expected network infrastructure XML data type description and current network infrastructure XML data type description, since Ootani teaches the process of storing the network topology as XML data type description.

One of ordinary skilled in the art would have been motivated for easy visualization of the network topology (Ootani, pg. 4 [0062, 0063, 0065]).

As per claim 20, Arkko discloses a system wherein the network infrastructure is a switched network infrastructure (fig. 1-4 and col. 3 L50-67).

As per claim 21, Arkko discloses the process of implementing a change of said network infrastructure with a configuration agent and storing said change in said expected network infrastructure description (col. 9 L46-57 and col. 14 L32-34).

As per claim 22, Arkko discloses the process of collecting said current network infrastructure description (col. 10 L21 to col. 12 L24).

As per claim 23, Arkko discloses the process wherein said collecting current network infrastructure description further comprises using agents to collect said current network infrastructure description (col. 10 L21 to col. 12 L24).

As per claim 24, Arkko does not disclose the process of converting expected network infrastructure description into an expected network infrastructure graphical description and converting said current network infrastructure de4scriotion into a current infrastructure graphical description.

Ootani explicitly discloses the process of storing the network topology or description as an XML file and converting the XML file into a graphical display (fig. 4-14, pg. 4 [0062-0065], pg. 5 [0080-0086], pg. 6 [0089-0092], [0095]).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in view of Aoyagi, and further in view of Ootani, in order to convert the expected and current network infrastructure description into expected and current graphical network infrastructure, since Ootani teaches the process converting the network topology XML file into graphical presentation of network topology.

One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 19.

As per claim 25, Arkko discloses the process of comparing expected network infrastructure description with said current network infrastructure description as in claim 19, however Arkko does not disclose the process of comparing the expected network infrastructure graphical description with said current network infrastructure graphical description.

Ootani explicitly discloses the process of storing the network topology or description as an XML file and converting the XML file into a graphical display (fig. 4-14, pg. 4 [0062-0065], pg. 5 [0080-0086], pg. 6 [0089-0092], [0095]).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in view of Aoyagi and further in view of Ootani, in order to compare the expected and current network infrastructure graphical description, since Ootani teaches the process of presenting the network description in a graphical form.

One of ordinary skilled in the art would have been motivated because of the same reasons as set forth in claim 19.

As per claim 27, Arkko discloses the process of informing the communications operator with an alarm at a monitoring terminal about a deviation (col. 9 L1-45), however Arkko does not disclose the process of outputting a message stating that expected network infrastructure description and current network infrastructure description are identical.

But, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko in order to output a message stating that the expected and current infrastructure description are identical, since Arkko teaches the process of outputting and informing the operator about the deviation.

One of ordinary skilled in the art would have been motivated because it would have informed and/or notified the network administrator about the status of the network infrastructure and/or changes occurred in the network infrastructure if there are any (Arkko, col. 9 L42-45).

As per claims 10-16 and 18, they do not teach or further define over the limitations in claims 19-25 and 27. Therefore claims 10-16 and 18 are rejected for the same reasons as set forth in claims 19-25 and 27.

4. Claims 17 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arkko et al. (hereinafter Arkko, U. S. Patent No. 6,535,517 B1) in view Aoyagi et al., (hereinafter Aoyagi, Pub. No.: 2002/0032761 A1), in view of Ootani et al., (hereinafter Ootani, Pub. No.: 2002/0135610 A1), and further in view of Fitzgerald et al. (hereinafter Fitzgerald, U. S. Patent No. 5,581,764).

As per claim 26, Arkko in view of Aoyagi and further in view of Ootani does not disclose the process of outputting a list of devices from said expected network infrastructure description which are missing from said current network infrastructure description, outputting a list of devices from said current network infrastructure description having a different configuration from the configuration of said devices in said expected network infrastructure description and outputting a list of devices from said current network infrastructure description which are not described in said expected network infrastructure description.

Fitzgerald discloses the method of comparing a Should have list (SH, read as expected network infrastructure description) and Already have list (AH, read as current network infrastructure description) of network resources (fig. 24 block #98) and based on comparison, generating (read as outputting) a Need List that identifies items that are present in the AH list but absent from SH list (col. 5 L10-30). A Need list also identifies resource deletions, additions, and updates necessary to configure a desktop (read as list which identifies the missing component, not described component and component with different configuration in either expected or current network infrastructure description, fig. 24 item #98 and #100 and fig. 25 item #112, #114, #116 and #118; fig. 3 considering an update function for a device with different configuration, delete function for a deleting devices or resources that are missing from current network infrastructure description and adding function for adding resources that are not described in expected network infrastructure description or Should have list; col. 5 L10-57).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arkko, Aoyagi and Ootani in view of Fitzgerald, in order to output a list of devices that are missing from current network infrastructure description, devices

or resources having a different configuration from expected configuration and devices that are not described in expected network infrastructure description.

One of ordinary skilled in the art would have been motivated because it would have automated and enabled the management of changes in a distributed computing environment (Fitzgerald, col. 8 L15-21). It would have also articulated and managed the specific system configuration requirements and would have further permitted dynamic reconfiguration of a system based upon policy changes and system technology configuration changes (Fitzgerald, col. 7 L30-35).

As per claim 17, it does not teach or further define over the limitations in claim 26. Therefore claim 17 is rejected for the same reasons as set forth in claim 26.

(10) Response to Argument

Examiner summarizes various arguments raised by the appellant and addresses each of them individually.

In the Brief filed, appellant argues in substance that:

a. Whether the specification is non-enabling under 35 USC, first paragraph.

The objection is withdrawn in light of appellant's remarks, See Brief, pg. 8, VII (1).

b. Whether the claims 1-27 are related to non-enabling disclosure under 3 USC, first paragraph.

The rejection is withdrawn in light of appellant's remarks, See Brief, pg. 9, VII (2).

c. Appellants do not understand Arkko to teach or suggest the storing an expected network infrastructure description of a network having a switched infrastructure without requiring hubs, said network having a data center (Brief, pg. 10-11 [3] and pg. 14 [4]).

In response to argument [c], Examiner respectfully disagrees.

Independent claim 1 recites:

> A method for managing a switched network infrastructure comprising:
> storing an expected network infrastructure description of a network having **a switched infrastructure without requiring hubs**, said network having a data center;
> comparing said expected network infrastructure description with a current network infrastructure description, wherein said comparing detects any new devices in the network infrastructure, any changed configuration of devices in the **network including hardware, software or firmware configuration changes**, and any devices or device interfaces that have been removed or have failed in the network;
> outputting a result of said comparing to an operation terminal at said data center, wherein only differences between said expected network infrastructure description and said current network infrastructure description are displayed; and
> providing said result in a user accessible format on said operation terminal at said data center operation for utilization by a data center operator.

First, it should be noted that the recitation "without requiring" conveys to one of ordinary skilled in the art that the elements such as hubs are not required or necessary, this however, does not necessarily imply that the switched environment are without hubs and/or that the hubs are completely excluded from the switched environment.

Secondly, Arkko discloses a network environment comprising switches, router and/or gateways. Stated another way, Arkko discloses a switched network environment without any hubs, For example, See col. 6 L45 to col. 7 L10 and the Summary of the Invention, reproduced herein.

SUMMARY OF THE INVENTION

The present invention provides a method and apparatus in broadcast networks for combining dynamic connectivity information with expected connectivity information to enable the detection of faulty devices. When a deviation from expected connectivity occurs, the deviation can be detected and responses taken either to avoid attempting to use a faulty device and/or to notify a network operator of the faulty device.

In a preferred embodiment, an NAS in association with a telecommunications switch includes a group of processing devices. The processing devices provide formatting changes for data being transmitted from the public telephone network to a private network such as the Internet and vice versa. The processing devices are interconnected via an Ethernet network and include a router that is a gateway to the Internet.

The expected network topology (e.g., the number and/or location of the processing devices) is initially specified. During operation of the NAS, the current network topology is periodically verified to be equivalent to the specified expected network topology. Deviations are detected when a given processing device fails to hear a "heartbeat" from every other processing device that is expected to be on the Ethernet network over a predetermined threshold period.

Problem counts are received from each processing device on the Ethernet network and a determination is made as to the faulty device or connection. This faulty device or connection is then reported to a network operator's terminal and/or used to route calls. Both incoming and current calls can be routed away from the faulty device or connection to ensure that public telephone network subscribers gain access to the Internet.

That is, the network environment is Ethernet network, wherein plurality of Ethernet networks are linked through the routers and/or gateways, **and not the hubs.**

In Arkko, there is no suggestion and/or any hint of the usage of the hubs in the network environment.

As such, Arkko does disclose a switched network environment without requiring the hubs.

d. Appellants do not understand Arkko and/or Fitzgerald to teach or suggest detecting any changed configuration of devices in the network including hardware, software **or** firmware configuration changes (Brief, pg. 11: 3rd and 4th paragraph).

In response to argument [d], Examiner respectfully disagrees.

As set forth in the rejection, Fitzgerald teaches the process of detecting a changed configuration of devices in the network including hardware, software **or** firmware configuration changes, for example: See col. 4 L60 to col. 5 L40, col. 7 L51 to col. 8 L15 and col. 9 L60 to col. 10 L5, fig. 3: Need List is equivalent to difference list.

The usage of "or" should also be noted in the claim recitation. The claim does not require all three configuration changes to be detected.

Fitzgerald teaches the process of managing and maintaining stored lists of **resources** and utilizing them to automate the creation of need lists (i.e. differences list).

A list designated as the "already Have" list is created and saved for **each computer system**. The **Already Have list lists resources that a computer system has**. **Such resources may have been transported to the computer system during an initial deployment** (see col. 4 L60 to col. 5 L10).

Fitzgerald teaches the process of creating the **Should have list** by interrogation process which obtains information such as cpu type (a hardware), operating system (a software), location, etc (col. 10 L61 to col. 11 L35).

In other words, the resources represents software or application(s) on the computer system, a cpu type of a computer system, operating system of a computer system, location of the computer system, etc., e.g. col. 4 L14-57.

In summary, Fitzgerald discloses the process of storing an expected configuration of a computer system, i.e. a network device, including software, hardware or firmware [i.e. should have list that lists the should have resources], comparing the expected configuration of the network device with current configuration [i.e. already have list that lists the resources that are already present] of the network device including hardware, software or firmware configuration changes and detecting any changed configuration of devices in the network including software, hardware or firmware configuration changes (col. 4 L60 to col. 5 L40, col. 7 L51 to col. 8 L15 and col. 9 L60 to col. 10 L5, fig. 3: Need List is equivalent to difference list, fig. 18).

For example: The figure reproduced below summarizes how the changes in configuration of a computer system are detected. The items aaa-ggg are all resources of a computer system including hardware and/or software components and/or are resource names of a computer system. E.g. col. 10 L45 to col. 11 L56, col. 25 L26 to col. 26 L67.

Note, only the changes between the two lists are outputted.

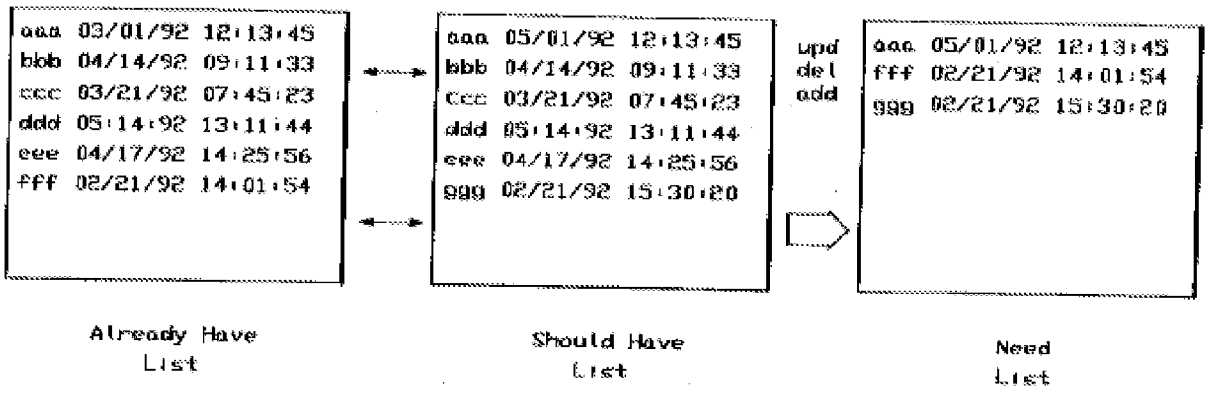

FIG.—3
(PRIOR ART)

As such, Fitzgerald discloses the process of detecting **any** changed configuration of devices in the network including hardware, software **or** firmware configuration changes.

Moreover, **appellant has clearly admitted** that "appellant's understand Fitzgerald to teach configuration of a desktop computer and specifically, should have and already have configurations of the **software** thereon", e.g. Brief, pg. 11: 4th paragraph.

e. Appellants do not understand Arkko to teach or render obvious the feature of "outputting a result of said comparing to an operation terminal at said data center, wherein only differences between said expected network infrastructure description and said current network infrastructure description are displayed; and providing said result in a user accessible format on said operation terminal at said data center operation for utilization by a data center operator" (Brief, pg. 11: Last paragraph, pg. 12: 1st, 2nd and 4th paragraph and pg. 15 [4]: 4th paragraph, pg. 16: 1st and 2nd paragraph).

In response to argument [e], Examiner respectfully disagrees.

Arkko teaches the process of storing an expected network topology of a network, for example, see fig. 5A reproduced herein, detecting whether a current network topology deviates from said expected network topology, fig. 5A, **identifying a portion of the network that deviates** and **reporting a detected deviation of network topology to a network operator**, see col. 14 L1-16 and fig. 5A.

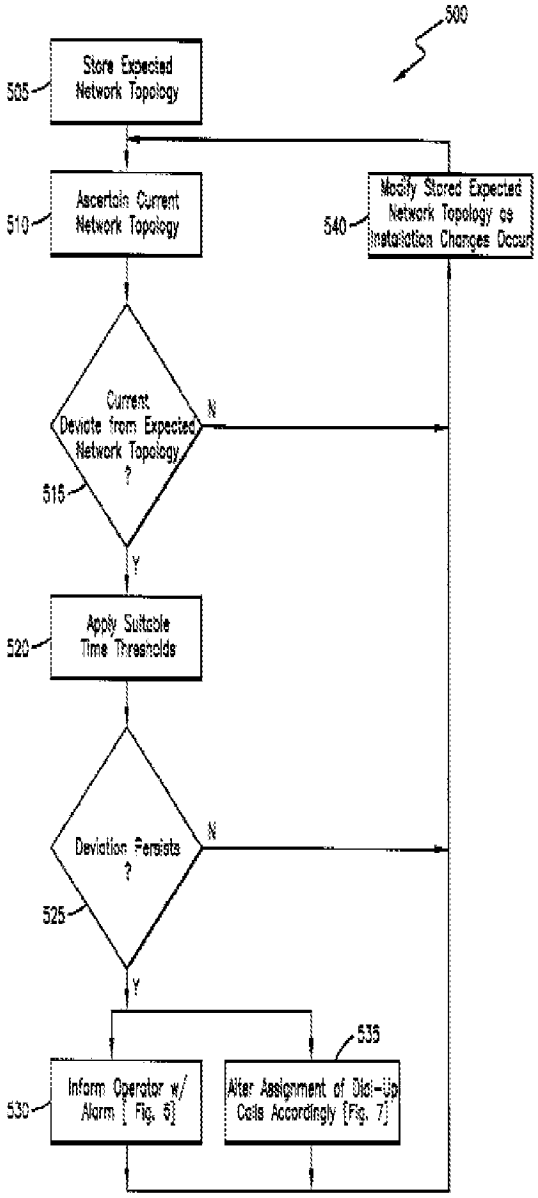

FIG. 5A

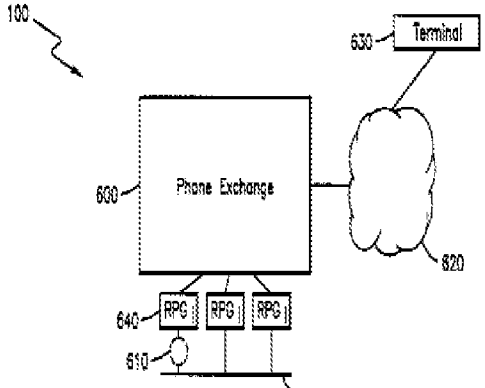

FIG. 6

Moreover, Arrko explicitly teaches that the **operator's terminal**, for example, item #630 of fig. 6 above, **can be located at the local exchange site**, i.e. at the data center site, e.g. col. 13 L1-16, which is reproduced herein.

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FIG. 6 illustrates the transmission of an alarm from a LE to a network operator according to a third aspect of the present invention. The LE 100 shows the phone exchange 600 (e.g., a GS/TS 142 with related apparatus such as the modem pool 176 from FIGS. 1–2) making a report to an operator's terminal 630. A problem has been detected at problem area 610, and problem area 610 renders RPG 640 inoperable at least with respect to connecting through to the Ethernet 164.

An alarm is transmitted through connection 620, which may be any local link or network through which the operator's terminal 630 is connected to the LE 100. Connection 620 can correspond to, for example, the Ethernet 164, the DL2 interface connections 160 and 162, E1/T1 trunk connections 152 (all of FIG. 1), the Datacom Network 220(3) (of FIG. 2), or any combination thereof. The operator terminal 630 can also be located at the LE 100. When the deviation is detected and the alarm is issued, the LE 100, in accordance with the present invention, informs an operator by displaying and/or printing an alarm on the operator's terminal 630. This alarm preferably includes an indication of the identity of the RPG-I 158 (e.g., RPG 640) and of the nature of the problem area (e.g., malfunctioning RPG 640 or damaged Ethernet 164).

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What is claimed is:

1. A method for improving call-routing efficiency for a network access server that is associated with a telecommunications switch, comprising the steps of:

storing an expected network topology of a first network of said network access server;

detecting whether a current network topology deviates from said expected network topology;

detecting whether said current network topology continues to deviate from said expected topology;

identifying a portion of said first network that deviates from said expected network topology;

reporting a detected continue deviation of said current network topology from said expected network topology to a network operator; and

routing calls away from said portion of said first network.

2. The method of claim 1, further comprising the steps of:

waiting for a predetermined threshold period when the step of detecting detects that said current network topology deviates from said expected network topology;

detecting whether said current network topology contin-

In summary, Arrko discloses reporting/outputting only the detected deviation, i.e. the detected difference, to an operator's terminal at the data center by displaying and/or printing only the detected deviation and/or differences between the current and expected topology in a user accessible format.

In addition to Arrko's teachings, Fitzgerald, as set forth in response to argument [b], discloses outputting only the differences between the already have list and should have list.

Therefore, in an event it is determined that Arrko does not disclose outputting only the differences of the comparison, it would be obvious to a person of ordinary skilled in the art at the time the invention was made to modify Arrko in view of Fitzgerald in order to only output and/or display the differences.

Furthermore, **Appellant's on pg. 12 of the Brief submits:**

"**Appellant understand Arrko to notify a network operator of a faulty device based on the expected topology**…However, appellants do not understand Arkko to teach or render obvious notifying a network operator of changes that are not faulty devices…"

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., notifying a network operator of changes that are not faulty devices) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In Arrko, at step 540 of fig. 5A, the installation changes, i.e. additions of the new network devices, e.g. claims 1-13, updates the stored expected network topology, and when the updated stored expected topology with installation changes is compared to the current topology, col. 9 L12-22, the comparison detects the additions, i.e. any new devices in the network.

Therefore, based on the comparison, the system informs/outputs/notifies the deviated part of the network, i.e. new devices, faulty devices and/or missing devices to the network operator, as evidenced by claims 1, 3, 6 and 13, as well as appellant's admissions, e.g. brief, pg. 12 as set forth above.

f. Appellants understand Fitzgerald to teach away from a data center (Brief, pg. 12: 3rd paragraph).

In response to argument [d], Examiner respectfully disagrees.

In the brief, appellant submits:

> "...Appellants understand Fitzgerald to teach away from a data center. Appellants understand Fitzgerald to teach that different departments often have different needs, and the challenge of centralized management increases as individual users within departments are able to specify their individual needs with greater particularity. Thus, the managers of networks of distributed desktop computers increasingly are being called upon to support a wide range of end-user involvement with the desktop, most notably the productivity enhancements of personalized desktop computing..."

In view of the paragraph above, it is unclear how Fitzgerald teaches away from a data center.

As is known in the art, a data center is an essential part of the network. Every company, firm and/or organization comprises at least one data center.

Moreover, there is no disclosure in Fitzgerald whatsoever that criticizes, discredits or otherwise discourages the usage of data center. See MPEP 2141.02 (VI) and In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004) [However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...."].

In fact, Fitzgerald's Invention is based on the centralized management of the resources of distributed computers, e.g. col. 9 L45-60 and col. 1 L64 to col. 2 L5.

g. Appellants do not understand Aoyagi and Ootani either alone or in conjunction to teach or anticipate the features of detecting any changed configuration of devices in the network including hardware, software or firmware configuration changes (Brief, pg. 15: 1st and 2nd paragraph).

In response to argument [g], Examiner respectfully disagrees.

Independent claim 19 recites:

A computer-usable medium having computer-readable program code embodied therein for causing a computer system to perform a method for managing a switched network infrastructure comprising:

storing an expected network infrastructure description as an XML data type description of a network having a switched infrastructure without requiring hubs, said network having a data center, said description comprising a device name and at least one configuration attribute for each device of said expected switched network infrastructure;

comparing said expected network infrastructure XML data type description with a current network infrastructure XML data type description comprising a device name and at least one configuration attribute for each device of said current network infrastructure, wherein said comparing **detects** any new devices in the network infrastructure, **any changed configuration of devices in the network including hardware, software or firmware configuration changes**, and any devices or device interfaces that have been removed or have failed in the network; and

outputting a result of said comparing to an operation terminal at said data center, wherein only differences between said expected network infrastructure description and said current network infrastructure description are displayed, and

providing said result in a user accessible format on said operation terminal at said data center operation for utilization by a data center operator.

The claim recites "detects **any changed configuration** of devices in the network including **hardware, software or firmware configuration changes**..."

In other words, any configuration change associated with software component, hardware component or firmware component of devices can be interpreted as any changed configuration of devices including hardware, software or firmware configuration changes.

Aoyagi discloses the process of detecting a change of IP address of the network device by comparing the previously collected data with the current set of data, for example, see claim 13 and pg. 25 [0468-0477].

Stated another way, Aoyagi discloses the process of detecting the changed configuration of the network device in the network including hardware, software or firmware configuration changes. In this case, the IP address change is a configuration change of hardware element of the device and/or configuration change of device itself.

As such, Aoyagi teaches the process of detecting the changed configuration of the network device in the network including at least hardware configuration changes.

In summary, it is believed that the prima facie case of obviousness has been clearly established with proper motivations and/or suggestions to combine the references, as set forth in the rejection.

(11) Related Proceeding(s) Appendix

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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